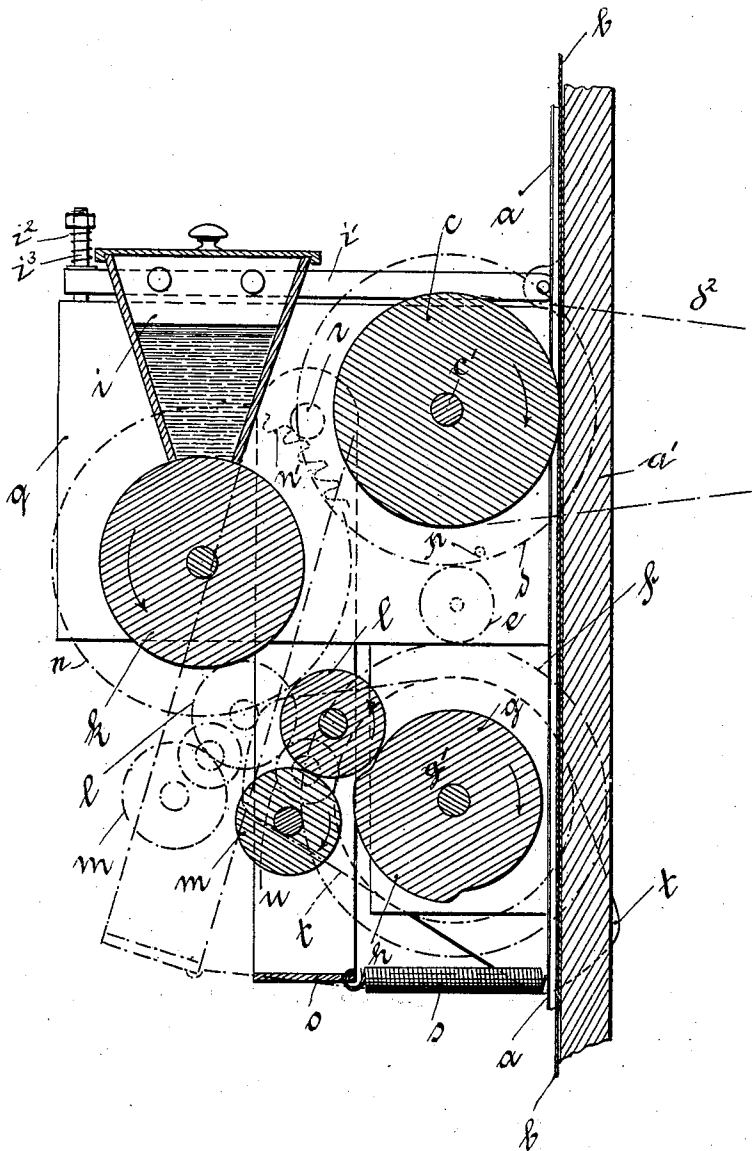


O. OEHRING.
 INKING DEVICE FOR PRINTING MACHINES.
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977,675.

Patented Dec. 6, 1910.



Witnesses:

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OSCAR OEHRING, OF BERLIN, GERMANY, ASSIGNOR TO AMERICAN STAMP & TICKET VENDING MACHINE CO., OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

INKING DEVICE FOR PRINTING-MACHINES.

977,675.

Specification of Letters Patent.

Patented Dec. 6, 1910.

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To all whom it may concern:

Be it known that I, OSCAR OEHRING, a subject of the Emperor of Germany, residing at Berlin, Germany, have invented new and useful Improvements in Inking Devices for Printing-Machines, of which the following is a specification.

This invention relates to printing machines, more particularly to the inking device employed on so-called self-printing machines; and has for its object to provide a simple and efficient device for automatically delivering a suitable quantity of ink from an ink fountain onto an inking roller rotatably mounted in a swinging frame adapted to vibrate between said fountain and the printing roller which latter roller is so designed that it assists in uniformly distributing the ink on the inking roller and thereby reduces to the minimum the quantity of ink applied to the printing surface and distribute it thereover as equitably as possible.

In the drawing, which represents a vertical sectional view through a so-called self-printing press, the letter *a* indicates a guide-way through which passes a strip *b* of paper or other material on the surface of which an impression is to be printed. The guide-way *a* is shown as mounted on a vertically disposed plate *a'* forming a part of the frame *g* of the printing press. At or near the top of the frame *g* is a feed roll *c* fast on a horizontal shaft *c'* mounted to turn in suitable bearings carried by said frame. Fixed on one end of said shaft *c'* is a gear wheel *d*, and a sprocket wheel, not shown, also fixed on said shaft or attached to the gear wheel *d* receives motion from a drive chain *d'* operated by any suitable prime motor. If desired any other convenient driving mechanism may be substituted for the sprocket wheel and chain.

The paper strip *b* enters the machine between the vertical plate *a'* and the periphery of the feed roll *c* which latter bears against the surface of the strip and draws said strip downwardly in the direction of the printing roller *g* when rotated, either continuously or intermittently. In the present instance the feed roll is designed to be rotated intermittently, and feed only as much of the strip at each movement as needed.

Below the feed roll *c* and near the bottom of the frame *g* is journaled a shaft *g'*, par-

allel to the shaft *c'*, which carries the printing roller *g*, provided with a printing surface *h* extending around more or less of the peripheral surface of said roller. The printing surface *h* may be an electrotpe, movable type or other means for producing an impression on the face of the strip *b*, an electrotpe however is preferred. The surface of the printing roller not covered by the electrotpe is smooth for a purpose to be hereinafter described. A gear wheel *f* on the shaft of the printing roller *g* meshes with a pinion *e* driven by the gear wheel *d* on the feed roll shaft *c'*.

The ink fountain *i* is fastened to an arm *i'* pivoted on the vertical plate *a'*, the free end of said arm and the fountain being forced downwardly by a spring *i²* surrounding a pin *i³* passing through said arm, and its tension adjusted by a nut, as shown. The bottom of the ink fountain is open and bears against a roller *k* which transfers ink from the fountain *i* into which the roller projects, to the inking roller *l* for covering the electrotpe with ink.

On the shaft of the ink supply roller *k* is mounted a disk *n* having peripheral teeth *n'* with which a pin *p* projecting from one side of the gear wheel *d*, engages and partly rotates said roller *k* at each revolution of the gear wheel *d*.

The printing roller *g* and ink supply roller *k* rotate in relatively fixed bearings and are separated from each other a greater distance than the diameter of the inking roller *l*, the roller *l* therefore must travel from one to the other to get a fresh supply of ink and apply the same to the printing surface or electrotpe *h*. This is accomplished by rotatably mounting the inking roller *l* and a distributing roller *m* in a swinging frame *o* pivoted at *r* to the main frame *g*, said swinging frame being normally held by a spring *s* in such position that the inking roller *l* bears against the printing roller *g* and is turned by it. The distributing roller *m* is rotated at the same time by the inking roller *b* with which it is in contact.

Mounted on the shaft *g'* to rotate therewith is a cam *t*, which, as the printing roller revolves, engages at the proper time a lug or roller *n* on the swinging frame *o* and swings said frame toward the ink supply roller *k* until the inking roller *l* comes in

contact therewith. It is at this time that the pin *p* on the gear wheel *d* engages a tooth *n'* on the disk *n* and turns the same and also the ink supply roller *h* which in turn rotates the inking roller *i* and supplies the latter with ink. The distributing roller *m* is also rotated by the inking roller and partly distributes the ink over the latter roller, while the roller *l* is receiving ink, the electrotpe *h* passing over the strip *b* and impressing its design thereon. This being accomplished the highest point of the cam *t* passes beyond the lug or roller *u* on the swinging frame and the latter is returned to its initial position by the spring *s*, bringing the inking roller against the concentric peripheral surface of the printing roller which again rotates the inking roller and in connection with the roller *m*, smoothly and evenly distributes the ink over the entire surface of the printing roller *i* so that when the electrotpe or printing surface is brought into contact with said roller *i*, a minimum quantity of ink will be applied to the printing surface and equally distributed thereover.

The operation of the invention will be readily understood from the foregoing description. The chain or belt *d'* may be driven by a continuously running motor to print successive impressions on a number of strips *b*, or it may be operated by a hand crank to print the strip, say for a ticket, only when desired. In the latter case the invention may form part of a vending machine of any approved or suitable type.

The strips *b* may be of relatively short length, or a long strip wound into a roll may be employed.

What is claimed as new is:—

1. A printing machine comprising an ink supplying means, a printing roller having a portion of its periphery smooth, an inking roller adapted to contact with both the printing surface and the smooth surface of the printing roller, means for causing said inking roller to travel between the ink supplying means and the printing roller, the smooth surface of which evenly distributes the ink over the periphery of the inking roller, and the latter roller over the printing surface, a distributing roller in contact with said inking roller to assist in distributing the ink thereover, and means on the shaft of the printing roller for causing the travel of the inking roller.

2. A printing machine comprising a feed mechanism, a printing roller having a portion of its periphery smooth, an ink supply means, an inking roller adapted to contact with both the printing surface and the smooth surface of the printing roller, a vibrating support therefor, and direct means for swinging said inking roller and its support between the ink supplying means and

the printing roller, the smooth surface of the latter serving to evenly distribute the ink over the periphery of the inking roller, and the latter roller over the printing surface.

3. A printing machine comprising a feed mechanism, a printing roller having a portion of its periphery smooth, an ink fountain, a distributing roller therefor, an oscillating inking roller mounted in vibrating arms and adapted to swing between the distributing roller and the printing roller and contact with both the printing surface and the smooth surface of the printing roller, the smooth surface of said printing roller serving to evenly distribute the ink over the periphery of the inking roller and the latter over the printing surface, and a cam on the printing roll shaft for directly operating one of said vibrating arms.

4. A printing machine comprising a feed mechanism, a printing roller having a portion of its periphery smooth, an ink supplying means, an oscillating inking roller, and means rotatable with the printing roller for swinging said inking roller between the ink supplying means and both the smooth and printing surfaces of the printing roller during the greater portion of the rotation of said printing roller.

5. A printing machine comprising a feed mechanism, a printing roller having a portion of its periphery smooth, an ink fountain, an ink distributing roller associated therewith, an oscillating inking roller adapted to receive ink from said distributing roller and apply the same to the printing roller, the smooth surface of the printing roller spreading the ink evenly over the surface of the inking roller before the latter engages the printing surface, and means operated by the rotation of the feed mechanism for intermittently turning the ink distributing roller.

6. A printing machine comprising a printing roller, an ink fountain, an ink distributing roller associated therewith, an inking roller movable between said ink distributing roller and the printing roller, a portion of the peripheral surface of the latter serving to evenly spread the ink over the surface of the inking roller and the latter roller over the printing surface, means operated in connection with the printing roller for swinging the inking roller into engagement with the ink distributing roller, and means for resiliently holding the ink fountain continually against the periphery of the ink distributing roller.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

OSCAR OEHRING.

Witnesses:

HENRY HASPER,

WOLDEMAR HAUPT.